Math 110 Quiz 6 Review
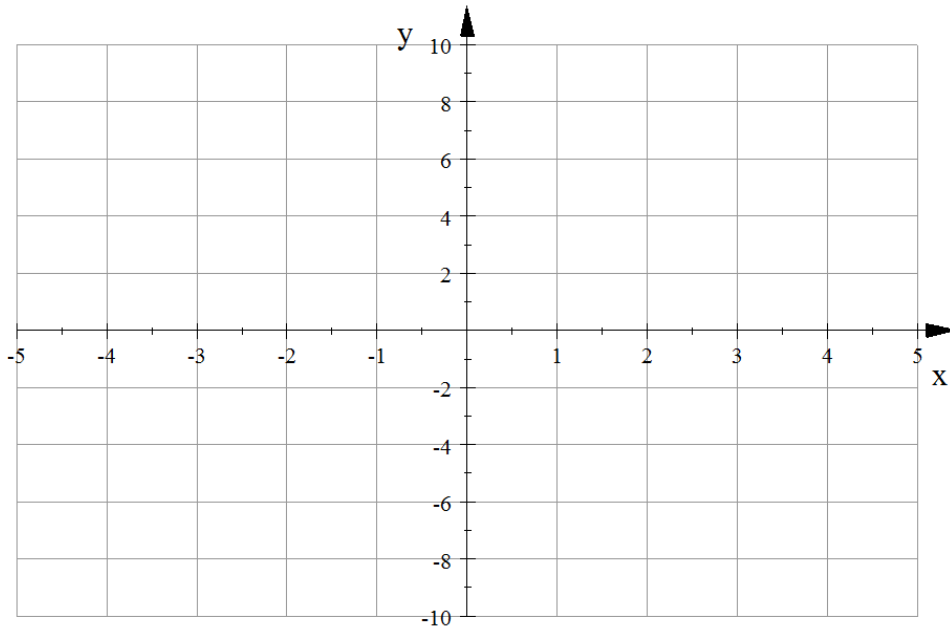
Name: _____

1. Sketch the graph of $f(x) = \frac{1}{20}(x-2)^3(x+1)^3(3x+1)^2$ and then answer the questions below.

   a. Number of local extrema _____, x-intercepts _____ y-intercepts _____

   b. Leading Coefficient of $f(x)$ is _____ and degree of $f(x) =$ _____

   c. End Behavior of $f(x)$ is like $y =$ _____ function.

   d. Intervals where $\frac{1}{20}(x-2)^3(x+1)^3(3x+1)^2 \geq 0$ are _____

2. Given the graph of the function $y = f(x)$ determine a rough sketch of the function $y = \frac{1}{f(x)}$. Show all your asymptotes clearly (use colored pens). Explain clearly your logic.
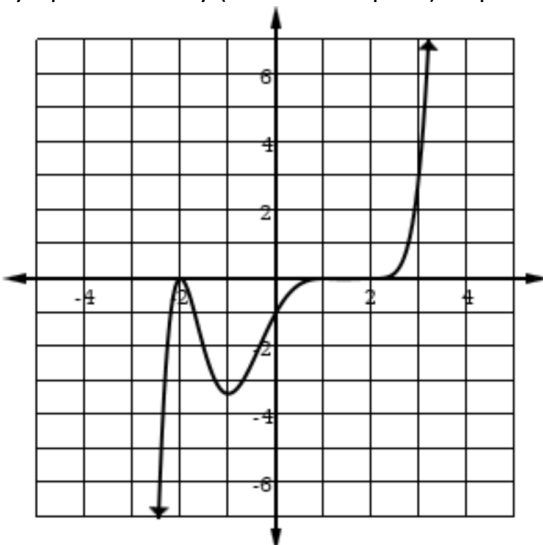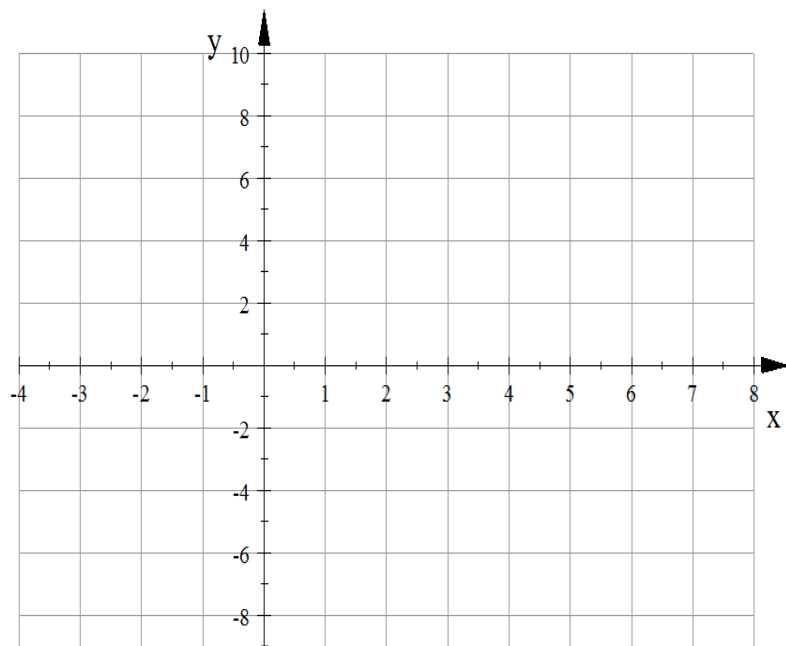
3. Sketch the graph of the following the functions below and fill in the blanks.

A. $f(x) = \frac{3x-1}{x-2}$,
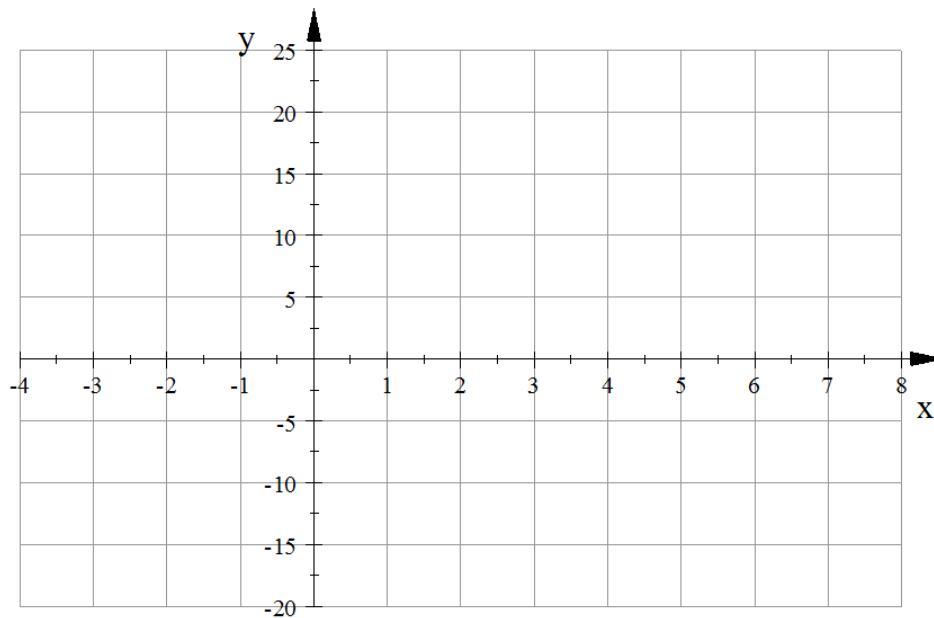
Asymptotes are _____

x-intercepts _____ y-intercept _____

B. $f(x) = \frac{(x-2)^2}{x-1} = x - 3 + \frac{1}{x-1}$

Asymptotes are _____

x-intercepts _____ y-intercept _____

C. $g(x) = \dfrac{(x+1)^2(x-2)^2}{(x-1)^2} = x^2 - 4 - \dfrac{4x-8}{(x+1)^2}$

Asymptotes are :_____ x-intercpets _____ y-intercept _____

Points of intersection with the asymptotes are _____

Intervals where $\dfrac{(x+1)^2(x-2)^2}{(x-1)^2} > 0$ are _____